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MILITARY THOUGHT (USSR): The Mobility of the Ground Forces
and Rear Services

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The Mobility of the Ground Forces
and Rear Services

by
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Full motorization and mechanization have increased ground forces mobility and maneuverability even further. Now operational formations as well as units and subunits can regroup on a large scale by their own means, and move rapidly in the enemy operational depth in an offensive.

It is quite clear that as the mobility and maneuverability of troops increase, stable rear services for them may be achieved only through a correspondingly high mobility of the rear services. It is this very level of mobility which is to the rear services the major quality which under new conditions determines its ability to provide continuous rear services support to the troops under all conditions of the situation.

In this article we shall analyze the mobility of the army and front rear services as they are currently organized, and possible ways of increasing that mobility further.

First we shall appraise the mobility of the army rear services. As is known, in the past the mobility and maneuverability of a combined-arms army depended on the foot march speed of the infantry large units and units, which did not exceed 25 to 30 kilometers per day, or on the speed of moving army troops by rail. In either case the army rear services could follow along with the troops.

The completely motorized and mechanized troops of modern combined-arms and tank armies can make rapid moves by their own means at a rate of 200 kilometers and more per day, overcoming water obstacles and zones of destruction and contamination on the way.

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Can the army rear services follow along with the army troops? No, they cannot, since their mobility is significantly lower than the mobility of the troops.

As is known, when the existing structure of the operational rear services was developed, the army rear services were greatly lightened to increase their mobility. Their composition contained only an army base, motor transport battalions, road battalions, and separate medical detachments. Materiel supplies at the army base were established at the level of only a two-day troop requirement. But the army motor transport was not able to carry even these supplies in one trip. Consequently, an army performing a long distance regrouping or moving to a theater of military operations, could not take all the necessary supplies with it.

The mobility and maneuverability of the army rear services are limited also by the cumbersome equipment of their stores, especially the fuel containers, by slow-moving technical means, and by the poor cross-country performance of army motor transport.

Much still must be done to increase the mobility of the front rear services.

The theory we have formed in regard to rear services support to troops in operations is based, as is known, on the movement of the front forward bases. This theory has been thoroughly studied in exercises and put into practice in the rear services support to troops. But its realization under wartime conditions is possible only if there is an availability of genuinely mobile bases in the composition of the front rear services. The existing front bases are all of the same type and for the time being still have low mobility. In view of the increasing materiel requirements of the front troops, up to 40 to 50 thousand tons of cargo has to be located at each of them. It is quite understandable that to transfer such heavy bases quickly and to move them around will be very difficult. Obviously, along with the large rear services bases we must have small, but mobile, bases so they can be moved during an operation.

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An analogous situation may be observed when appraising the mobility of hospital bases. When the army rear services were lightened, the army hospital base was removed from their composition. Because of its low mobility, it really overburdened the army rear services. The admission of wounded from the troops and from the separate medical detachments was assigned to the front rear services. But, then, front hospital bases also have low mobility. They cannot follow the army using only their own transportation. Consequently, the very critical problem of ensuring the immediate reception of wounded from the troops and the rapid release of field medical posts has not been resolved. And it cannot be resolved without creating mobile hospital bases capable of moving to the forward area to receive the wounded from the troops.

We believe a front must have supply bases, hospital bases, maintenance units, and other units of two types: mobile units capable of following the troops on their organic transport and providing rear support; and base units and facilities which, distributed deep in the rear and on railways, will ensure disposition in depth and concealment of the main front reserve supplies, medical treatment for the wounded, repair of equipment, etc.

The mobile front rear services large units and units in an operation comprise the first (mobile) echelon of the front rear services, and the rest make up the second (base) echelon.

The mobile echelon, capable of rapid movement like the troops, will increase the stability of rear services support to the troops, especially when they are separated a great distance from the supply bases while conducting an offensive to the entire depth of the theater of military operations.

The mobility of the army and front rear services is adversely affected by the present organizational fragmentation of the rear units and facilities, which makes the control of the rear services in highly mobile operations extremely difficult. The army rear services actually have more than 50, and the front rear services more than 60^{50X1-HUM} separate facilities.

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In the past, when the army, and more so the front, rear services fulfilled their tasks in relatively stable conditions, this did not cause great difficulties. Army and front depots remained at the railroad lines throughout the operation, and were relocated no more than once or twice during an operation, only as they were replenished. Hospital bases, and maintenance and other facilities, were deployed in the rear and remained in place for a long time.

Now when troops move great distances, the rear services must be moved at the same time. But to form the numerous rear services units into columns, and to organize their movement and control, requires a great deal of time.

What direction can the improvement of the rear services organizational structure take? We believe this problem may be properly resolved only on the basis of a thorough study of the general trends in the development of the rear services structure.

If we trace the history of the development of the rear services, it is not difficult to note that one of the basic trends in improving their organization was to consolidate the fragmented units and strengthen the organs of control. In speaking of the rear services structure which had developed by the beginning of World War II, we know that at that time there were no directorates of army and front bases, hospital bases, brigades and other rear services entities.

Army depots were located at supply stations, and there was no form to their organizational consolidation. Hospitals were in a similar situation. There were no hospital bases in the modern sense.

At the very beginning of the war the rear services structure was revealed to be incompatible with the complex conditions under which operations were conducted; therefore, there arose an essentially new rear services organization, in which the consolidation of rear units and facilities into army and front bases, hospital bases, motor transport and road brigades, and rear large units, units, and facilities^{50X1-HUM} acquired very great importance.

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This form of consolidation made some progress in the postwar period, but in essence remained on the same World War II level. Its distinguishing feature is the incompleteness of the organizational consolidation of rear units and facilities. The separate depot, hospital and workshop have remained the basic organizational units.

This fragmentation of rear units and facilities does not meet the requirements of the times, the increasing volume of the tasks of rear services support to troops in operations, and the complicated conditions under which this support must be rendered. The consolidation of the numerous small rear facilities into larger, mobile and well-controlled large units undoubtedly would increase the mobility of the army and front rear services.

Equipping the rear services with transport is the major way to increase its mobility.

In the past war the basic means of supply for the front rear services was rail transport. Motor transport had even then acquired great importance, but there still was little of it. Aviation performed only isolated tasks, delivering materiel to troops and partisan detachments. On the whole, during the World War II period, as a rule, the question had not yet arisen as to what type of transport might most reliably ensure the supply of materiel in an operation. There was no choice. A front had only railroads and a limited amount of motor transport available. It was mainly these means which performed the tasks of supplying materiel to the troops at the front level.

Now a completely different situation has arisen. Motor transport has been greatly developed in the national economy. It has developed so powerfully that it has surpassed rail transport in the amount of cargo carried. Its rate of development now is higher than the rate of development of railroads. River and sea shipping also occupies an important place in cargo transport.

Air transport also has grown very rapidly; it now is carrying out mass supply shipments. Lately pipelines have come into wide use; this is a high-capacity means of


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supplying fuel in theaters of military operations.

With such a diversity in the types of transport capable of fulfilling a large volume of work, it has become particularly important to make an accurate, scientifically-based appraisal of the role and capabilities of various types of transport with a comprehensive appreciation for the efficiency of their use and the reliability of maintaining supply shipments.

We shall examine this question in more detail. First, about rail transport. Its role and capabilities frequently are appraised without sufficient consideration for the modern development of all types of transport and the conditions for using them in a nuclear war. An underestimation of the vulnerability of railroads and an overestimation of their capabilities, especially in the front rear services, very often crop up in our literature and in our exercises.

At the same time, detailed study shows that railroads under conditions of a nuclear war can be used effectively only in the depth of a theater of military operations; within the limits of the front rear, especially when highly mobile operations are being conducted, only limited use of them is possible.

The problem is that the conditions for ensuring the viability of railroads in the deep rear and in the front offensive zone are essentially different. In the deep rear, as is known, a whole series of organizational-technical measures, directed toward increasing the viability of the railroads, are carried out even in peacetime: the construction of wide bypasses of large railroad junctions; the development of reserves of repair materials and special parks of floating equipment in areas where destruction of road installations is probable; the preparation of temporary transshipment areas; the development of a system for the reliable technical protection of railroads; etc.

All this provides the basis for believing that the viability of railroads in the deep rear can be assured to some extent even under the conditions of a nuclear war.



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Moreover, it must be assumed that the density of enemy strikes against railroads located in the depth will be relatively less than against front roads.

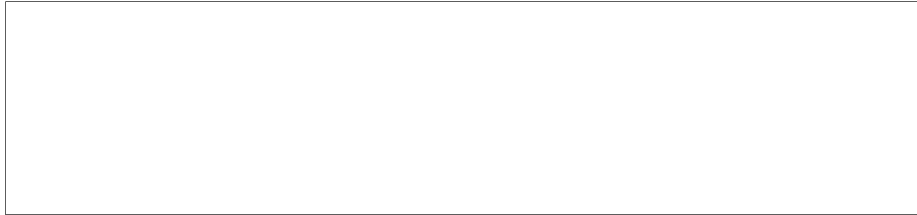
An essentially different situation arises in the front rear. In the first place, the enemy will strike the railroads heavily when retreating. Secondly, after they are rebuilt he can again disrupt the operation of the railroads with operational-tactical missile and air strikes. The situation becomes still more complicated in that the forces and means for repairing the railroads in the offensive zone will have to be moved from deep in the rear, which will require a great deal of time.

It should be emphasized that the problem of rebuilding the front railroads was very complex in the past war also. During offensive operations the rate of rebuilding them fell sharply behind the rate of advance of the troops, which, in view of the lack of motor transport, made supporting the troops extremely difficult and often reduced their offensive capabilities.

Only when a considerable amount of motor transport was received by the troops in the second half of 1943 and in 1944 and 1945, and higher capacity motor transport supply units were developed in the rear services complement of the fronts, did the mobility of the rear services increase; and this was conducive to improving troop support under the conditions of a sharply increasing scope of offensive operations.

Thus, it is not difficult to see that the increase in rear services capabilities to support the troops in large-scale offensive operations was linked primarily to motorization. True, there may be some objections to this. But then we know that the total volume of railroad supply shipments was larger than motor transport supply shipments. On that basis the conclusion frequently is drawn that rail transport was the primary type of transport up to the very end of the war. This problem, of course, cannot be oversimplified. The fact is that supply by rail was carried out for the most part during so-called operational pauses, when supplies were accumulated. The railroads were rebuilt

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almost up to the forward edge during the pauses between operations, and supplies were delivered directly to the troops by rail.

But during an operation, because of the lagging pace of railroad restoration, the troops quickly left their supply bases behind, and the main role in supplying them with materiel was assumed by motor transport. It is namely the motor transport capabilities that determined the depth to which the troops could be separated from the supply bases located at the railroads. In 1943 the rear services could supply the troops when they were separated from the railroads by no more than 150 to 200 kilometers, but in 1945 the rear services of the First Belorussian Front supplied troops who were separated from their supply bases by 400 to 500 kilometers in the Vistula-Oder operation.

All these historical facts have been cited not to belittle the role of the railroads, but to draw what we consider to be a highly important conclusion: the capabilities of the rear services for uninterrupted troop support during rapid offensive operations conducted without operational pauses, will be determined primarily by the degree of motorization of the front rear services.

It is true that lately the technical equipment status of the railroad troops has grown sharply and the pace of rebuilding the railroads has increased; however, the capabilities for supply deliveries on restored railroads during an offensive nevertheless are limited.

It is only necessary to make a slight calculation of effectiveness to be convinced of this. One railroad brigade working on a railroad line will rebuild it to a depth of up to 200 kilometers during an operation lasting 10 to 12 days. If the line is open for traffic for four or five days, no more than 50 to 60 trains, or 40 to 50 thousand tons of materiel, will be supplied along it to a depth of no more than 150 to 200 kilometers. It is not difficult to see that this does not solve the supply problem.

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In practical exercises, in an attempt to increase the rate of restoring railroads, two railroad brigades often are assigned to restore one rail line. In this case the restoration rate is increased approximately one and a half times and can reach 35 to 40 kilometers per day. In a 10 to 12-day operation a rail line will be rebuilt to a depth of 250 to 300 kilometers. But only 60 to 70 trains will proceed along it all the same. Clearly this does not solve the supply problem, either. The separation of troops from the supply bases will reach 400 to 500 kilometers, and motor transport will assume a decisive role in supplying materiel to the troops. Thus, in view of the enormous amount of work involved in rebuilding the railroads in the front rear, motor transport has become a more efficient means of supply. It is also clear that it has increased in quality as well as quantity, and its cargo capacity and speed have grown sharply. Consequently, reinforcing the front rear services with motor transport units is the basic means of increasing the transport capabilities of these rear services.

Such is the situation with respect to the efficiency of using rail and motor transport in the front rear.

The reliability factor is no less important. There is no need to prove the higher reliability of motor vehicle shipments in comparison with rail. The experience of exercises, and especially the NEMAN exercise, have shown that a few nuclear strikes are enough to disrupt the operation of the restored rail segments. This cannot be ignored. And what is more, we have to draw the very definite conclusion that under modern conditions rear services support to front troops cannot be made dependent on the operation of the railroads. The full motorization and high maneuverability of the front troops dictate the need for the kind of mobile rear services support system that would ensure an uninterrupted supply of materiel to the troops even in the event the operation of the railroads is temporarily disrupted.

We are not at all denying the necessity of rebuilding the railroads in the front rear. We have to rebuild them, of course, since they are required for subsequent supply shipments after the operation. It is especially important

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to ensure the viability of the railroads in the deep rear, in order to carry out the systematic supply of cargo from the depth, where the railroads will have a decisive role.

All these calculations and substantiations have been cited only for the purpose of showing that the problem of supplying materiel in a front during operations being conducted to a great depth is resolved most effectively by increasing the motorization of the front rear services and by increasing the cargo capacity of motor transport.

In light of the problems of further increasing the mobility of the rear services we particularly should examine the question of the place of motor transport in the organizational structure of the army and front rear services, that is, the forms its organization should take.

The new qualities and capabilities of motor transport expand its tasks and the scales on which it is used. Of course, to realize them more fully it is necessary to find the perfect forms of organization. This question arises because under modern conditions motor transport is not only a means of supply, but also a means of moving rear units and facilities. Thus, the role of motor transport has changed radically. Previously, front and army rear units and facilities with supplies of materiel were moved mainly by railroad, and therefore motor transport basically was used only to move materiel supplies from bases at the railroads to the troops.

A different situation arises in modern operations. Mobile supply bases have to follow closely behind the troops and away from the railroads. Now motor transport ensures not only supplying materiel to the troops, but also moving the bases during an operation, i.e., the constant mobility of bases. Consequently, the work of motor transport is closely linked with the movement of bases. Supply bases and transport fulfill the common task of ensuring an uninterrupted supply of materiel to the troops. All this explains the desirability for the front rear services to have mobile bases which would contain motor transport as well as depots and servicing units. These bases undoubtedly will be highly mobile and easily controlled.

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At present, to transport materiel from the depots to the troops, we have to issue three orders: to the chief of the base, the officer commanding the motor transport unit, and to the chief of the depot. With the organizational consolidation of the depots, servicing units, and transport, this would no longer be necessary. The efficiency of the work would increase, as would the responsibility of the base chief for the timely supply of materiel to the troops.

Mobile front bases will be able to move behind the armies of the front first echelon and supply materiel to the army bases during an operation. There is no need to include motor transport in the complement of rear bases located at railroads. To supply materiel from the rear bases to the mobile ones requires high-capacity front motor transport supply brigades composed of vehicles with increased cargo capacity and vehicle trailers. Calculations show that a motor transport brigade consisting of four motor transport Battalions made up of vehicles with a four to five ton cargo capacity with trailers, and two battalions of tank trucks, may have a total cargo capacity of up to six to seven thousand tons. It is precisely such brigades which, in close coordination with the mobile bases, can ensure a stable and uninterrupted supply of materiel to the troops under any conditions of the situation.

Thus, two forms of organization of motor transport units are possible in the front rear services. Part of the transport can be in the composition of the mobile bases, and, at the same time, it is necessary to have separate high-capacity motor transport supply brigades, which will deliver materiel to the rear bases located in the depth of the rear, to the forward mobile bases, and sometimes directly to the armies.

In light of the ever increasing mobility of the ground forces, especially if one takes into consideration the prospects for the wide introduction of helicopters into the troops, there arises the especially important problem of equipping the rear with air transport. Under the conditions of a rapid offensive, great destruction on the supply routes, and especially when the enemy creates entire zones of destruction and contamination, air transport in a number

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of cases may be the only means of ensuring the rapid delivery of materiel.

The rapid development of aviation equipment, the improvement of helicopter combat characteristics, and the emergence of vertical take-off aircraft -- all this attests to the fact that in the near future the ground forces will begin to use air transport means on a large scale for rapid movement and maneuvering, and even for combat. This raises the very urgent problem of equipping the army and front rear services with air transport and, at the same time, mastering the methods of supplying materiel by air. In our view, it is necessary right now to gradually introduce helicopter regiments into the army and air transport and helicopter regiments into the front; these regiments should be used to supply materiel to the troops during offensive operations conducted in the far depth.

Pipelines, as is known, have become an important means of technical equipment of the rear services. Their efficiency and desirability of use are unquestioned. But we must not fail to take into account the weak side of pipeline transport, namely its low maneuverability. This predetermines the methods of using field main pipelines. If a pipeline is used at a location for a short time, it cannot be highly productive because laying and filling it take a great deal of time. The experience of the NEMAN exercise showed that the pipeline began to supply fuel at full capacity considerably later than it was supposed to.

The indisputable advantage of pipelines is achieved when one is operated in the same location for a long time after it is laid. In this case, it indeed ensures a stable and uninterrupted supply of fuel in large quantities. These pipeline characteristics determine the high efficiency of using them to supply fuel from deep in the rear, and from the front rear services bases, to the forward bases.

Consequently, the use of pipelines solves only the problem of bringing fuel from the rear bases closer to the forward bases; the task of supplying it to the mobile army bases and to the troops during a fluid operation is left on motor and air transport.

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Thus, on the basis of analyzing the role and methods of using all types of transport in the front rear services, we should conclude that at its current level of development the main and decisive means of transport in a system of multiple transport in offensive operations is primarily motor transport.

* * *

One of the important factors affecting the mobility of the rear services is the control system. The valuable combat experience of the past war showed conclusively that the principal way to improve the entire system of control of the rear services is to increase its centralization.

The rear services of a front or army represent a whole complex of services, and various forces and means fulfilling the overall task: comprehensive materiel, technical and medical support to the troops. The control of such diverse rear services means under the conditions of modern operations represents a very complex task.

The structure of rear services control organs which arose during the past war in essence has been retained up to the present time. Meanwhile, a number of factors have cropped up which complicate organizing the coordinated activities of all the services.

In the World War II period there were no support services directly subordinate to the troop commander. They were part of the rear or were subordinate to the chiefs of the arms of troops. The postwar period saw the appearance of very important independent technical services: vehicle-tractor and armored services which were subordinate to the troop commander of a front or army. The nature of the work of the missile-artillery armament service has changed considerably; it not only ensures the supply of arms and ammunition, but also fulfils complex missile-technical support tasks.

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By the nature of the tasks being fulfilled, all these services pertain to the materiel-technical support services, that is, to the rear as a whole. Directing them and ensuring their coordinated operation has become incomparably more complex than in the past. Practice is convincingly indicative of this.

Evident in almost any exercise are the difficulties with which the rear services staffs prepare orders or directives for the rear services, only because the organizational structure of the control organs does not provide the necessary contact between the rear services staff and the technical services.

The rear services staff plans troop support by services subordinate to the deputy commander for the rear, and the other services plan independently according to their own types of support, frequently without proper coordination with either the combined-arms staff or the rear services staff. This leads to the fact that a single, mutually coordinated plan for rear services support is not worked out in the majority of cases. Each service solves its problems independently.

It would seem that since the technical services are not subordinate to the chief of rear services, the combined-arms staff has to engage in organizing the coordinated work of all the services. However, as the experience of exercises has shown, the combined-arms staff cannot be involved in this. What is more, neither can the troop commander. The question arises as to who must exercise direct control of the entire rear services as a whole, including the technical services.

This question may be analyzed against the experience of the vehicle-tractor and armored services. As is known, until recently the vehicle-tractor and armored services were consolidated under the direction of the assistant troop commander for technical affairs. But this consolidation did not and could not justify itself. A scientific analysis of this problem shows that the technical support services need only operational direction, not technical. From the technical standpoint any chief of a service is the

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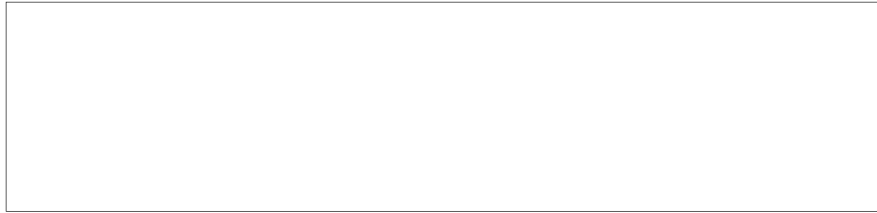
highest-qualified specialist. Therefore, when resolving special problems he must exhibit independence and bear full responsibility for supporting troops with the appropriate type of supplies, especially since the next higher chief, too, is responsible for exercising specialized direction of the service. This fully applies to the other services such as fuel, medical, food supply, etc., as well. All services need only operational direction and organization of their coordinated work to support troops in an operation.

Who can exercise operational direction of all materiel, technical, and medical support services? In our view, only the combined-arms operational rear services chief and his staff.

In our opinion, it has become necessary for a front and army to have a single operational-rear services chief, to whom all the materiel-technical troop support services will be subordinate. Obviously he must be the operational director, possessing broad functions like a deputy troop commander, who will exercise direction of the materiel-technical support to the troops as a whole. The service chiefs will retain their function of resolving specific problems.

All this undoubtedly will expand the role of the services and will be conducive to improving them. Accordingly, the importance of the rear services staffs, which will have to structure their work on the combined-arms staff principle, will increase sharply. Just as the combined-arms staff jointly with the arms of troops prepares data for adopting a decision and formulates it, and also prepares the operational directive or combat order, the rear services staff in the same way works up data and formulates a rear services decision, and develops a directive (order) for the rear services which has to be implemented by all the services just like a combat order. The combined-arms staff develops the plan for the operation, and the rear services staff develops the plan for rear services support to the troops.

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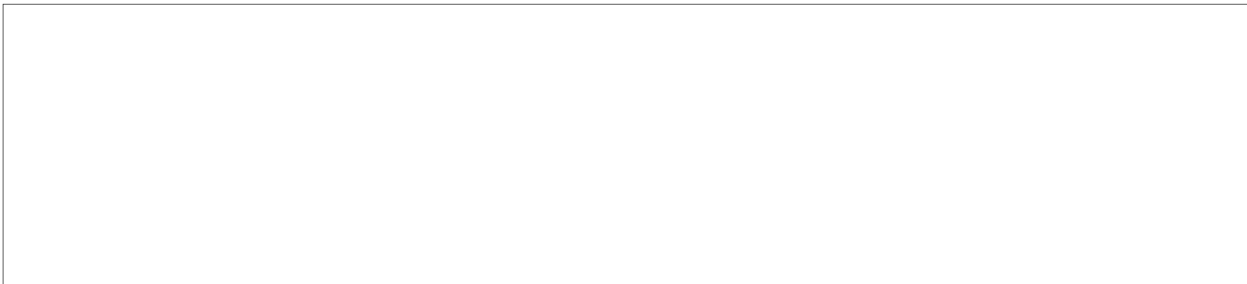
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Thus, the rear services staff, in preparing the data for the decisions and the planning of rear services support to troops in an operation, will fulfil the same functions as a combined-arms staff in preparing the data for operational decisions and the planning of troop combat actions. Of course, this will require still more contact in the work of the rear services staffs with the combined-arms staff.

In conclusion, it should be emphasized that the problems touched upon in this article were stated in very general terms and require more detailed research; nevertheless we have a sound basis for concluding that the radical qualitative changes in the ground forces, and particularly their increased mobility and maneuverability, have necessitated a new approach to resolving the problems of rear services support to the troops, and above all a sharp increase in the mobility of the army and front rear services.

This may be achieved by further motorizing the rear services, by widely introducing air transport and new, more mobile technical rear services means, and by improving the structure of rear services large units, units and control organs.

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